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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/874,538	06/05/2001	Rajankikant Jonnalagadda	H0001839	5236

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EXAMINER
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LEO, LEONARD R

ART UNIT	PAPER NUMBER
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3743

DATE MAILED: 08/07/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/874,538

Applicant(s)

JONNALAGADDA ET AL.

Examiner

Leonard R. Leo

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 11 June 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-6, 8, 11-14 and 17-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6, 8, 11-14 and 17-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

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### DETAILED ACTION

The amendment filed June 11, 2003 has been entered. Claims 1-6, 8, 11-14 and 17-21 are pending.

#### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-4, 6, 8 and 11-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Harper.

Harper discloses all the claimed limitations except a plurality of isolation and flow direction control (IFDC) plates.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to employ an additional IFDC plate, since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *In re Harza*, 274F.2d 669, 124 USPQ 378 (CCPA 1960).

Regarding claims 6 and 14, the slot 38 of Harper is believed sized to permit a suitable flow of hydraulic fluid to be cooled by the air.

Claims 5, 17-18 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Harper in view of Maniscalco.

The device of Harper lacks a U-shaped tube bundle.

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Maniscalco discloses a heat exchanger comprising a shell 6 having an inlet 14 and outlet 15; a tube side inlet 28 and outlet 29; and a plurality of IFDC plates 10; wherein the tubes 20 form a plurality of U-shaped bundles for the purpose of increasing the residence time and heat exchange of the tube side fluid.

Since Harper and Maniscalco are both from the same field of endeavor and/or analogous art, the purpose disclosed by Maniscalco would have been recognized in the pertinent art of Harper.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ in Harper a U-shaped tube bundle for the purpose of increasing the residence time and heat exchange of the tube side fluid as recognized by Maniscalco.

Regarding claims 17-18 and 20, Figure 3 of Maniscalco discloses a plurality of slots 12 in IFDC plate 10 of varying cross-section.

Claims 19 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Harper in view of Applicants' admission (page 3, paragraph 11).

The device of Harper lacks a turbine environment.

Applicants' admission discloses it is well known in the art to employ a turbine connected in series to the shell side outlet of a heat exchanger.

Since Harper and Applicants' admission are both from the same field of endeavor and/or analogous art, the purpose disclosed by Applicants' admission would have been recognized in the pertinent art of Harper.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ in Harper a turbine connected in series to the shell side outlet

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of the heat exchange for the purpose of utility in a turbine environment as recognized by

Applicants' admission.

***Response to Arguments***

The claim objection is withdrawn.

The rejection under 35 U.S.C. 112, second paragraph, is withdrawn.

In response to applicants' remarks with respect to Harper and Maniscalco, the arguments presented may be persuasive if one were not of ordinary skill in the art of heat exchange.

However, the person having ordinary skill in the heat exchanger art would not encounter the problems suggested by applicants.

With respect to Harper, it would have been obvious to one of ordinary skill in the art to employ in Harper an additional IFDC plate for the purpose of increasing the residence time and heat exchange of the shell side fluid. ***This motivation was stated in the previous Office action.*** The Examiner does not suggest merely employing a second "diametric" baffle, since this would be physically impossible. As evidenced by any number of prior art references, i.e. Maniscalco, Agate, Halleck Walker, Pfluger et al, Pittmon et al and Burns, producing multipass flow for a working fluid by employing a plurality of baffles is well known to improve residence time and improve heat exchange. In an odd number of baffles, the inlet and outlet are located on a common end, whereas an even number of baffles produces an inlet and outlet located on opposite ends. This is a very fundamental concept and does not warrant patentability. Thus, one of ordinary skill in the art would employ any number of baffles to improve heat exchange. This is admitted by applicants (pages 1-2).

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With respect to the combination of Harper and Maniscalco, the term “U-shaped tube bundle” is misrepresented. However, Maniscalco teaches a U-shaped tube bundle consistent with applicants’ disclosure. In fact, the tubes are not formed as U-shapes, rather the flow path of the fluid within the tubes form a U-shape, where an inlet header and outlet header are located on the same end and a return header is located on the opposite end. Applicants’ Figures 1 and 3 depict this structure and flow path. As noted above, any number of prior art references, i.e. Maniscalco, Halleck, Walker and Dickey, provides evidence that producing multipass flow for a working fluid by employing a plurality of baffles in the header or manifold is well known to improve residence time and improve heat exchange. A single baffle or partition located in the inlet/outlet header provides a single U-shaped tube bundle path, whereas additional partitions in respective headers will provide an increased number of passes (i.e. Maniscalco). This is a very fundamental concept and does not warrant patentability.

With respect to applicants’ admission, MPEP 2129 states the admission is available as prior art against the claims. Regardless of semantics, i.e. prior art, background art, conventional, well known, commonly, the entire section labeled under “Background Art” is considered to be an admission. The section heading states that tube and shell heat exchangers are the *most common* type of the heat exchanger. *The use of baffle plates on the shell side of heat exchangers has been in existence for many years.* The entire discussion as a whole conveys to the reader that the structures are prior art. If the section under “Background Art” is not “prior art,” then what is it? Is this part of applicants’ invention? The Examiner requests any and all documents associated with the “Background Art,” so that the particular relevance and critical dates may be determined. Applicants’ admission is not applied to disclose or teach the heat exchanger per se,

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rather than employing a tube and shell heat exchanger in combination with a turbine is well known.


***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry of a general nature, relating to the status of this application or clerical nature (i.e. missing or incomplete references, missing or incomplete Office actions or forms) should be directed to the Technology Center 3700 Customer Service whose telephone number is (703) 306-5648. Status of the application may also be obtained from the Internet: <http://pair.uspto.gov/cgi-bin/final/home.pl>

Any inquiry concerning this Office action should be directed to Leonard R. Leo whose telephone number is (703) 308-2611.

  
LEONARD R. LEO  
PRIMARY EXAMINER  
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August 6, 2003